(No Model.)

2 Sheets—Sheet 1.

P. NORTH.

TARGET TRAP.

No. 457,442. Patented Aug. 11, 1891.

Fig. 1.

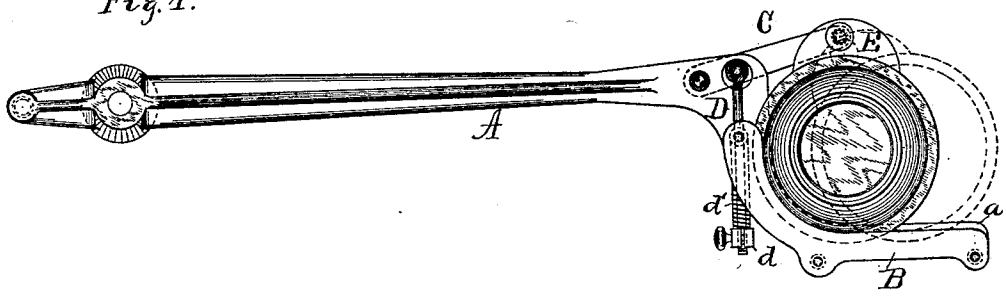


Fig. 3.

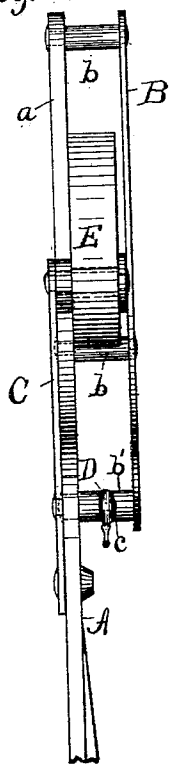


Fig. 2

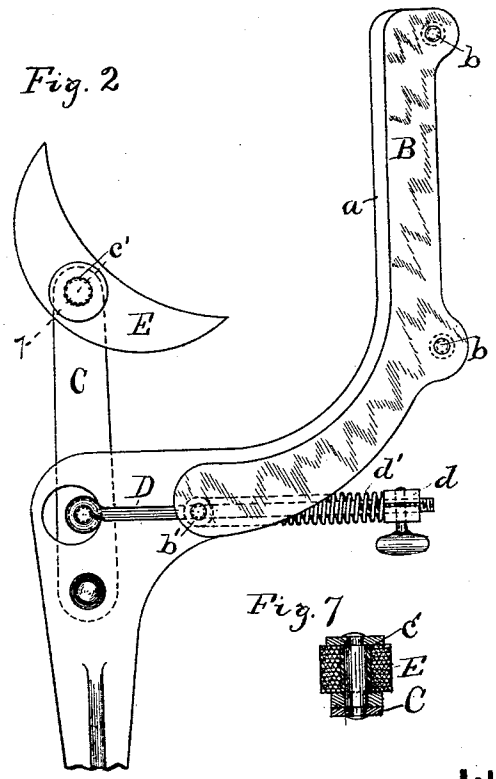


Fig. 7

WITNESSES.

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(No Model.)

2 Sheets—Sheet 2.

P. NORTH.

TARGET TRAP.

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Fig 4

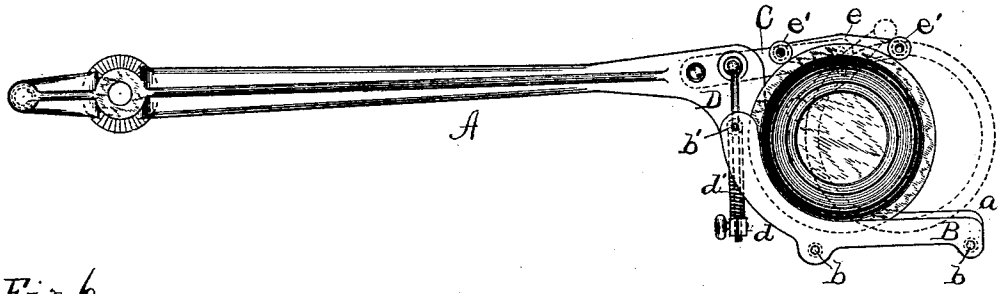


Fig. 6.

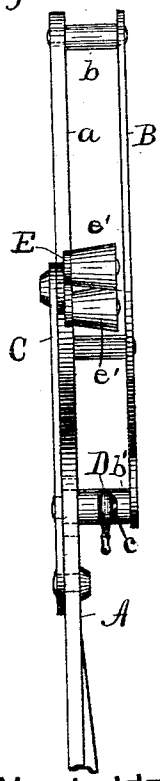
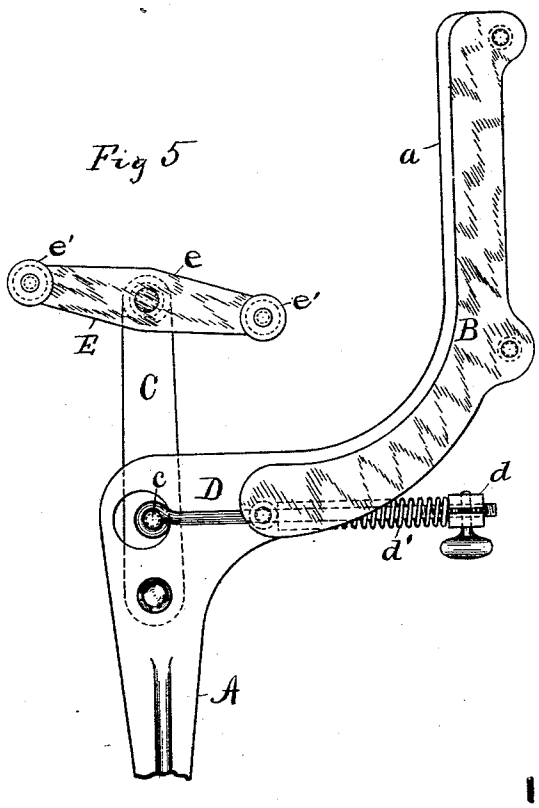


Fig 5



WITNESSES.

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UNITED STATES PATENT OFFICE.

PAUL NORTH, OF CLEVELAND, OHIO.

TARGET-TRAP.

SPECIFICATION forming part of Letters Patent No. 457,442, dated August 11, 1891.

Application filed November 21, 1890. Serial No. 372,158. (No model.)

To all whom it may concern:

Be it known that I, PAUL NORTH, a citizen of the United States, residing in Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Target-Traps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to that class of devices which are designed to throw dish-shaped flying targets, or, as they are sometimes called, "artificial birds." To throw these targets any considerable distance it has been found necessary to impart to them a whirling motion or independent axial rotation during flight, which serves to steady them and prevents their turning over or tipping. In the early history of this art this rotary motion was secured by means of tongue on or notch in the target, the tongue-targets being thrown most successfully. One great objection to the tongue-targets, however, was their liability to be broken in handling. Another objection was their liability to be broken in the trap or during the throwing operation, and these objectionable features, coupled with the fact that the tongue to a greater or less extent unbalanced the target and made it uncertain in flight, have resulted in a very decided preference for the tongueless targets. In all prior traps for throwing these tongueless targets which have been practically successful the target has been held during the throwing operation by what has come to be known as a "pivoted carrier"—that is, a device pivoted to the outer end of the throwing-arm and having an independent motion upon its own pivot by which the target was supported and from which it was released at the proper time. The centrifugal force generated by the revolution of the throwing-arm would cause this pivoted carrier, which at the beginning of the throwing movement was set at an angle to the throwing-arm, to swing outward, turning on its pivot with a quick movement. This independent swinging of the carrier imparted to the target when it was released the axial rotation desired. The release of the target from the pivoted carrier was effected either by the action of centrifugal force overcoming the spring-pressure which held the target or by some positively-operated releasing mechanism. By comparison with the trap herein shown those targets having a pivoted carrier were complicated and expensive, and, furthermore, some skill and experience was necessary to keep them in proper order and to successfully operate them.

The object of my invention is to provide a trap with which frangible dish-shaped targets having neither tongues nor notches may be successfully thrown and given the desired rotary motion without the employment of the pivoted carrier and with very little breakage.

To this end it consists in the construction and combination of parts herein described, and pointed out definitely in the claims.

Referring to the drawings, Figure 1 is a top plan view of the throwing-arm with the target placed therein in a position ready for throwing. Fig. 2 is an enlarged top plan view, and Fig. 3 is a side elevation, of the outer end of the throwing-arm and the parts attached thereto. Figs. 4, 5, and 6 are similar views of a modified and improved form of the invention, and Fig. 7 is a sectional view on line 7 of Fig. 2.

A represents a rigid throwing-arm, which is designed to be pivoted to any suitable support and operated in any suitable well-known manner. The outer end *a* of this arm is preferably flattened, and this flattened part is offset to the rear side of the main arm and then extended substantially parallel thereto. A part of the bottom edge of the target is supported on said flattened extension *a* until the target is finally released from the clamping devices.

B represents a slide-rail—that is, it is a flat metallic bar rigidly secured to and above the extension *a* by the pins *b b'*—which rail serves as the stationary clamping-jaw. The edge of the target is pressed against the edge of this rail by the other clamping-arm, with an annular shoulder on the target lying under the edge of this rail, whereby the target is held squarely on the part *a* until finally released. The inner end of this rail B is curved in a circular arc, so that it rests against about one-third of the edge of the target when the target is in a position to be thrown from the trap. Thus the strain on the target incident to the throwing act is so distributed that

there is comparatively little danger of breakage. That edge of this rail with which the target engages when it is moving out of the clamping device and until released therefrom is smooth and substantially straight, as shown.

C represents a spring-actuated clamping-arm, which is pivoted to the throwing-arm and in front thereof—that is to say, on that side thereof toward which the arm A moves during the throwing operation. In the form shown a pin *c* on said arm is engaged by an eye-bar D, which passes loosely through the pin *b'*, and a coiled spring around said eye-bar thrusting against said pin and the adjustable nut *d* draws the arm C toward the rail B.

E represents a bearing-block, which is connected to the spring-actuated arm by a pivot and is adapted to bear against the edge of the target for a short distance on each side of said pivot. This bearing-block, in the form shown in Figs, 1, 2, and 3, is made of rubber, and its bearing-edge has substantially the same curve as the edge of the target against which it bears. This block turns freely on its pivot, and to secure this free movement a metallic sleeve *c'* is inserted in the rubber block.

In the form of the invention shown in Figs. 4, 5, and 6 the bearing-block E consists of a flat bar or plate *e*, loosely pivoted at its middle point to the clamping-arm C and having at its ends the vertical rubber pins *e' e'*, which taper slightly downward, whereby they tend to hold the lower edge of the target down against the plate *e* until said target is released. As shown, the clamping-arm C lies below the throwing-arm and the plate *e* rests on the clamping-arm. The upper surfaces of said plate and of the part *a* of the throwing-arm are therefore in substantially the same plane and the target is thrown squarely edge first and without any tendency to tip over.

Figs. 1 and 4 represent the position of the parts when the target is inserted preparatory to throwing it, and the dotted lines show said position at the instant of release or discharge.

The mode of operation of the device is as follows: When the centrifugal force generated by the revolution of the arm A (in the direction of the arrow 1) is sufficient to overcome the clamping-pressure, the target moves outward. The friction of the bearing-block D on the target is greater than the friction of the slide-rail, and therefore the forward edge of the target is retarded and the rear edge slides on said rail. In so sliding the target turns the bearing-block on its pivot until said block reaches a position where it no longer exerts a pressure sufficient to hold the target, as shown by the dotted lines of Fig. 1, whereupon the target is released and flies away, rotating as it goes. The rotary motion is, as I believe, due to two causes—first, the outermost parts of the target are during the revolution of the throwing-arm moving faster than the inner parts, and this tends to produce, when the target is released, a rotary motion thereof in the direction indicated by the arrow 2, and will, in fact, produce such motion to some extent if the tendency is not competely resisted, and, second, the manner in which the target is obliged to escape by reason of the difference in the friction on its respective sides, which, as above explained, retards the outward motion of the forward edge of the target, and thus this tendency to revolve, as above explained, is not resisted, but is increased, and the movement is initiated before the target leaves the trap.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a pivoted throwing-arm, a clamping-jaw rigid therewith, a spring-actuated clamping-arm pivoted to said throwing-arm, and a loosely-pivoted block adapted to engage with the forward edge of a target, substantially as and for the purpose specified.

2. The combination of a rigid throwing-arm, a clamping-jaw rigid therewith, a spring-actuated clamping-arm pivoted to said throwing-arm and in front of the rigid clamping-jaw, and a bearing-block pivoted to the clamping-arm and adapted to retard the outward movement of the forward edge of the target, substantially as and for the purpose specified.

3. The combination of a rigid throwing-arm, of which the outer end is offset to the rear, with a spring-actuated clamping-arm pivoted to said throwing-arm and lying in front thereof, and a bearing-block pivoted to said pivoted clamping-arm and adapted to retard the outward movement of the forward edge of the target, substantially as and for the purpose specified.

4. The combination of a rigid throwing-arm having its outer end flattened and offset to the rear, and a slide-rail B, rigidly secured to the throwing-arm above its outer end, with a spring-actuated clamping-arm pivoted to the throwing-arm and lying in front thereof, and a plate E, loosely pivoted to said spring-actuated clamping-arm, having the rubber pins *e e'*, adapted to engage with the target, substantially as and for the purpose specified.

5. The combination of a rigid throwing-arm, a slide-rail B, secured thereto and above it, having its inner clamping-edge curved and its outer clamping-edge substantially straight, a spring-actuated clamping-arm pivoted to said throwing-arm, and a bearing-block E, pivoted to said spring-actuated clamping-arm, substantially as and for the purpose specified.

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Witnesses:
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